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SOUTHERN UTILIZATION RESEARCH BRANCH //

3
A REPORT ON FARM VALUE OF CROPS* CONSUMED IN INDUSTRIAL
(NON-FOOD AND NON-FEED) END USES. ALSO IMPORTS
OF IMPORTANT AGRICULTURAL CROPS USED INDUSTRIALLY //

(Date) ⁵⁰ May 24, 1956

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* Crops included are those assigned to the Southern Branch
for evaluation.

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Farm Value of Crops Consumed in
Industrial (Non-Food and Non-Feed) Uses
1955

	<u>Million Dollars</u>
Cotton	1875.
Chemical Grade Cellulose	33.3
Cottonseed Oil	.350
Cottonseed Oil Foots (1954)	1.17
Non-Chemical Grade Linters	13.6
Naval Stores	26.1
Citrus Bioflavonoids	product value only
Citrus Meal and Molasses	nil
Pectin	.5
Ramie	1.2
Tung	<u>5.6</u>
Total	\$1956.8

Farm Value of Cotton Used by the Industry
during the 1954-55 Marketing Year, and
estimates for the 1955-56 Marketing Year

Recap:

<u>Products</u>	<u>Raw Material</u>	<u>Farm Value</u> (Mil. dollars)	
All products containing U. S. cotton	U. S. Cotton	<u>1954-55</u> 2,060	<u>1955-56</u> 1,875

Consumption* of U. S. Cotton

1954-55	12,250,000	500 $\frac{1}{2}$ gross wt. bales
1955-56**	11,150,000	500 $\frac{1}{2}$ gross wt. bales

* Domestic consumption plus exports.

** Estimated

Farm Value of Cotton Used by the Industry in 1954-55 and 1955-56
Marketing Years

1954. Domestic consumption and exports of U. S. Cotton during 1954-55
was 12.25 million 500-pound-gross-weight bales valued at

$$\begin{array}{rcl} \text{cents/\#} & \text{bales} & \text{\#/bale} \\ 33.61 & (12,250,000) & (500) = \$2,060,000,000 \end{array}$$

1955. Domestic consumption and exports of U. S. cotton during 1955-56
is estimated to be 11.15 million 500-pound-gross weight bales based
on March 1956 forecasts. The estimated value based on the 1954-55
marketing season average price is

$$\begin{array}{rcl} \text{cents/\#} & \text{bales} & \text{\#/bale} \\ 33.61 & (11,150,000) & (500) = \$1,875,000,000 \end{array}$$

Farm Value of Chemical Grade Cellulose
Used by the Industry 1954 and 1955

Recap:

<u>Products</u>	<u>Raw Materials</u>	<u>Farm Value</u> (Mil. dollars)	
		<u>1954</u>	<u>1955</u>
Cotton linters pulp	Cottonseed	14.5	11.4
Dissolving wood pulp	Pulpwood	17.2	21.9

Industrial Consumption

	<u>1954</u>	<u>1955</u>
Chemical Grade Cotton Linters	1,115,000 running bales	n.a. until end of season *
Dissolving wood pulp	776,027 short tons	983,444 short tons

* Consumption by bleachers during the first 7 months of 1955-56 was substantially higher than the same period of 1954-55. The larger consumption was probably caused by a high level of economic activity in the United States and relatively low prices for linters.

Cotton Linters

Cotton linters consumed by bleachers amounted to 884,298 bales during the 1954-55 season. Total disappearance of the chemical grades including 230,000 running bales exported was 1,115,000 running bales, or 88% of production. The value of chemical grade linters was determined to be 4.8 percent of the total value of products from cottonseed in the 1954-55 and 1955-56 seasons (see following page); and that percentage was taken as the percentage of the farm value of cottonseed which might be attributable to chemical grade linters produced. Imports of all grades of linters amounting to 182,000 bales were not included in this estimate because no breakdown by grade was available.

1954-55 season tons cottonseed
 (5,709,000) (\$60.30/ton) (0.048) (.88) = \$14.5 million

1955-56 season tons cottonseed
 (6,043,000) (44.50) (0.048) (.88) = \$11.4 million

Value of Products from 1 ton cottonseed
 for 1954-55 season

	Value Dollars	% Total Value
Oil	44.32	52.2
Meal	30.26	35.7
Linters	7.24	8.5
Hulls	<u>3.04</u>	<u>3.6</u>
	84.86	100

Grade	Avg. Price 1954-55 Cents/pound	% of Total Produced	Aggregate Price Cents/pound	% of Linters Value	% of Cottonseed Products Value
1	8.37	0.1	.008)	43.5	3.7
2	8.17	10.3	.841)		
3	6.32	10.9	.688)		
4	4.55	3.8	.172)		
5	3.28	31.0	1.017)	56.5	4.8
6	2.77	29.2	.809)		
7	2.71	<u>14.7</u>	<u>.398</u>)		
Total		100.	3.933		

Estimated Value of Products from 1 ton cottonseed based on yields and prices prevailing thus far in 1955-56 season

	Yield	Price	Value	% Total Value
Oil	333# @	12.9 cents/#	\$42.90	54.7
Meal	941# @	\$55.50/ton	26.11	33.3
Linters	181# @	3.5 cents/#	6.34	8.1
Hulls	(assumed same as 1954-55 season)		<u>3.04</u>	<u>3.9</u>
Total			\$78.39	100.0

Grade	Avg. Price Aug.-Jan. (1955-56)	% of Total Produced	Aggregate Price	% of Linters Value	% of Cottonseed Products Value
1	9.14	-			
2	8.05	.04	.32)		
3	6.24	.13	.81)	41%	3.3
4	4.51	.07	.32)		
5	3.22	.14	.45)		
6	2.59	.50	1.30)	59%	4.8
7	2.53	.12	<u>.30</u>)		
			3.50		

Wood Pulp

1954

The United States produced 776,027 short tons of special alpha and dissolving grades of wood pulp in 1954. For this estimate it was assumed that all of this was consumed domestically or exported. (North American producers' inventories increased only 16 thousand short tons during 1954). This production (or industrial consumption) represents 4-1/4 percent of total woodpulp production.

During the same period 29,436,383 cords of pulpwood were consumed for woodpulp of all grades, and the value of 4-1/4 percent of this pulpwood is estimated to be

$$(29,436,383) (.0425) (\$13.75) = \$17,200,000$$

1955

983,444 short tones of special alpha and dissolving grades of wood pulp were produced in 1955. Since there was no apparent change in inventories at pulp or paper mills during the period the production was assumed to be industrial consumption (whether domestic consumption or exports for foreign consumption). This production represents 4-3/4 percent of total wood pulp production. During the same period 33,332,011 cords of pulpwood were consumed for woodpulp of all grades, and the value of 4-3/4 percent of this pulpwood is estimated to be

$$(33,332,011) (.0475) \$13.80 = \$21,850,000$$

Farm Value of Cottonseed Oil Used
by the Industry in Non-food Uses
1954 and 1955

Recap:

<u>Products</u>	<u>Raw Material</u>	<u>Farm Value</u> <u>(Dollars)</u>	
		<u>1954</u>	<u>1955</u>
Inedible products (for example rubber, cosmetics, putty, lubricants, greases) containing cottonseed oil:	Cottonseed	100,000	350,000

Industrial Consumption of
Cottonseed Oil in Inedible Products

	<u>Quantity</u>	<u>Refined Oil</u> <u>Value</u>
1954	1,090,000 pounds	\$ 230,000
1955	3,558,000 pounds	715,000

1954. Cottonseed oil consumed in inedible products amounted to 1,090,000 pounds in 1954 valued at \$230,000 based on an average season price for cottonseed oil of 21 cents per pound.

The farm value of cottonseed oil was determined to be 52.2 percent of the total value of products from cottonseed in the 1954-55 season; and that percentage was taken as the percentage of the farm value of cottonseed which might be attributable to cottonseed oil. Only 0.06% of cottonseed oil produced was consumed in inedible products with a farm value of

$$\begin{array}{l} \text{tons crushed} \quad \$/\text{ton} \\ (5,709,000) \quad (60.30) \quad (0.52) \quad (.0006) = \$100,000 \end{array}$$

Similarly for 1955

$$(6,043,000) (44.50) (0.55) (.0024) = \$350,000$$

Farm Value of Cottonseed Oil Foots
Used by the Industry during 1954

Recap:

<u>Products</u>	<u>Raw Material</u>	<u>Farm Value</u>
Industrial products containing cottonseed oil foots or fatty acids therefrom	Cottonseed	\$1,170,000

Industrial Consumption

	<u>Quantity</u>	<u>Raw Foots Value</u>
Cottonseed oil foots	84.3 million pounds	\$1,680,000

Farm Value of Cottonseed Oil Foots Utilized by the Industry during 1954.

The production of cottonseed oil foots is not reported as such. The best available information on foots production is reported as refining loss which is obtained by difference from the consumption of crude oil in refining, and the production of refined oil. This loss includes fatty acids, neutral oils, unsaponifiables, phospholipides, and impurities. Cottonseed oil refining loss amounted to 123 million pounds in 1954.

The consumption of all vegetable foots in 1954 amounted to 163 million pounds or 68.5 percent of production. Assuming that percentage of production to be applicable to the consumption of cottonseed oil foots, then the quantity of cottonseed oil foots consumed was

$$(123,000,000) (0.685) = 84.3 \text{ million pounds}$$

with a value of

$$\begin{array}{l} \text{million } \frac{\text{lb}}{\text{ton}} \quad \$/\text{pound} \\ (84.3) \quad (.02) = \$1,680,000 \end{array}$$

based on a price of 2 cents per pound for raw foots.

The farm value of cottonseed oil foots consumed is computed on the basis of crude oil farm value and a ratio of the value of foots consumed over the value of crude oil produced

$$\begin{array}{l} \text{tons cottonseed} \quad \$/\text{ton} \\ (5,709,000) \quad (60.30) \quad (0.52) \quad \left(\frac{84,300,000 (.02)}{2,000,092,000 (.129)} \right) = \$1,170,000 \end{array}$$

Farm Value of Non-Chemical Grade Linters
Used by the Industry

1954-55 and 1955-56 Seasons

Recap:

<u>Products</u>	<u>Raw Material</u>	<u>Farm Value</u> (Mil. Dollars)	
		<u>1954</u>	<u>1955</u>
All products containing non-chemical grade cotton linters	Cottonseed.	\$17.3	\$13.6

<u>Industrial Consumption</u>		
	<u>1954</u>	<u>1955</u>
Non Chemical Grade Cotton Linters	609,000	N.A. until end
	Running Bales	of season*

* Consumption by both bleachers and other consumers during the first seven months of 1955-56 was substantially higher than the same period of 1954-55.

Farm Value of Non-Chemical Grade Linters
Used by the Industry

Cotton linters utilized by consumers other than bleachers amounted to 584,000 bales during the 1954-55 season. Total disappearance of the non-chemical grades including 25,000 running bales exported was 609,000 bales, or 144% of production.

The value of non-chemical grade linters was determined to be an average of 3.5% of the total value of products from cottonseed in the 1954-55 and 1955-56 seasons (See Farm Value of Chemical Grade Cellulose going into Industrial End Uses); and that percentage was taken as the percentage of the farm value of cottonseed which might be attributable to non-chemical grade linters.

	Tons					
	Cottonseed	\$/Ton				
1954-55 Season	(5,709,000)	(60.30)	(0.035)	(1.44)	=	\$17.3 Million
1955-56 Season	(6,043,000)	(44.50)	(0.035)	(1.44)	=	\$13.6 Million

Citrus Bioflavonoids

Recap:

<u>1955</u>	<u>Production</u>	<u>Product Value</u>
Vitamin P	150,000 pounds	\$1,800,000

Associated Press Release of March 5, 1956, stated production of Vitamin P at 150 thousand pounds valued at \$1,800,000. It was reported in the April 10, 1956 issue of Oil, Paint and Drug Reporter that sales in the drug field in 1955 were a full ten times greater than those of the previous year.

Because of the fact that we do not know what relative amounts of the bioflavonoids are extracted from lemons, grapefruit and oranges, nor to what extent they are extracted from pulp and peel already evaluated under "Pectin", it is believed that any "farm value" estimate by us at this time would be a guess.

Information on the Utilization by Industry
of Citrus Meal and Molasses

Summary:

We know of no industrial end use of citrus meal. Supplies of citrus molasses from Florida for utilization in the production of ethyl alcohol have been all but wiped out by the increased demand from cattle feeders in Florida.

The farm value of raw materials going into industrial utilization (non-food and non-feed uses) is believed to be nil.

Information on the Utilization by Industry of Citrus Meal and Molasses

Citrus Meal: We know of no industrial end use of citrus meal. Citrus meals are among the more widely accepted feeds for beef cattle and dairy cows. During the 1953-54 season, 21,400 tons of meal and 264,000 tons of pulp from Florida citrus alone were consumed. April, 1956 prices at Atlanta, Ga., were pulp \$44, meal \$41.50/ton, sacked.

Citrus Molasses: Citrus molasses is a carbohydrate source for microbiological conversion to other products such as ethyl alcohol, methane, citric acid, and torula yeast for cattle feed. Other than the first named, ethyl alcohol, we are not aware of any commercial production, but considerable experimental work has been conducted with all the foregoing. The quantity of orange molasses consumed in alcohol production in California in 1948 was 606,528 gallons.

It has been reported that if the price of blackstrap molasses falls below \$20 per ton, it does not pay to sell molasses for by-product use, and instead it is added to dried citrus meals. In the 1953-54 season more than 55 thousand tons of citrus molasses were produced from Florida citrus. In April, 1956, at Atlanta, Ga., citrus molasses sold for \$20/ton bulk, fob Florida producing points, in limited supply. It has been reported that citrus molasses supplies have been all but wiped out by the increased demand from cattle feeders in Florida. The trend of feed molasses usage is continuing upward.

Farm Value of Naval Stores Used by the Industry in 1955-56 Naval Stores Year

Recap:

<u>Products</u>	<u>Raw Materials</u>	<u>Farm Value</u> (<u>Mil. dollars</u>)
Gum Turpentine and Rosin	Pine Gum	20.2
Steam Distilled Turpentine and Rosin	Stumps	2.0
Sulfate Turpentine	Wood	1.6
Tall Oil	Wood	<u>2.3</u>
All	All	26.1

Industrial Consumption

<u>Naval Stores</u>	<u>Quantity</u>	<u>Product Value</u>
Turpentine (wood & gum)	650,000 (50 gal. bbl.)	\$16,000,000
Rosin (wood & gum)	1,825,000 (520 lb. drum)	79,500,000
Tall oil (crude)	550-600,000,000 lb.	<u>15,000,000</u>
		\$110,500,000
Additional:		
Pine Oil	187,000	7,500,000
Pine Tar	98,660	1,750,000
Dipentene	36,340	1,200,000
Other monocyclic hydrocarbons	92,660	<u>1,000,000</u>
		<u>\$11,450,000</u>
Total		<u><u>\$121,950,000</u></u>

Farm Value of Naval Stores Used by the Industry in 1955-56 Naval Stores Year

Gum

The farm value of gum naval stores used by the industry was computed from the quantities of the gum turpentine and gum rosin consumed, and the season average price of pine gum. Losses in processing the gum into turpentine and rosin were assumed negligible.

Gum Products	Industrial Consumption
	Mil. pounds <u>1/</u>
Turpentine	149,000 bbls.: 53.6
	:
Rosin	452,970 drums : <u>235.5</u>
Total	289.1

1/ Barrels of 50 gals. of gum turpentine converted to pounds by factor 7.2 pounds per gallon (360 pounds per barrel) and drums of gum rosin converted to pounds by factor 520 pounds per drum.

Equivalent quantities of pine gum 289.1 mil. pounds or 741.3 thous. bbls.
Value of pine gum = 20.2 million dollars based on \$27.30 per Standard bbl.

Wood

For wood naval stores, two major classifications are considered:

- (1) Steam Distilled Products
- (2) Sulfate Products

Steam Distilled Products:

It was considered that the most prevalent practice is for the

naval stores industry to pay landowners between \$1.00 and \$1.50 per acre to clear stumps from their property. The amount paid depends upon such factors as new tree density and stump density.

Steam Distilled Products	Industrial Consumption
	Mil. pounds
Turpentine	201,270 bbls. $\frac{1}{2}$: 72.5
Rosin	1,369,440 drums : <u>712.1</u>
Total	784.6

1/ Consumption of steam distilled turpentine based on production.

Assumed to be in same proportion to total turpentine consumption as is its production to total production.

Assuming the resin content of stumps is 25 percent by weight, and that there is an average of 1 ton of stumps per acre, then the farm value of the raw material is approximately

$$\frac{784.6 \text{ million } (\$1.25)}{.25 (2000)} = \$1,960,000$$

Sulfate Products:

Turpentine from the sulfate process and tall oil are by-products of the paper industry, and because combined they are worth but approximately one and one-half^{percent} of the Kraft paper industry product value, their value of the farm level is considered to be one and one half percent of pulpwood value, or \$1.6 million and \$2.3 million respectively.

Sulfate Woodpulp produced in the manufacture of paper and board,
Preliminary 1955

	Tons	Value	% Total Value
Bleached Sulphate	3,626,936 @ \$150/ton	\$544,040,000	
Semibleached Sulphate	483,917 @ 135/ton	65,329,000	
Unbleached Sulphate	<u>7,881,850 @ 115/ton</u>	<u>906,413,000</u>	
	11,992,703	\$1,515,782,000	98.53

Tall oil produced, 1955

586,600,000 pounds
@ 45.00 ton (crude tanks) \$13,200,000 0.86

Turpentine produced, 1955-56

302,970 barrels of 50 gallons
302,970 (50) (.62) = 9,392,000 or 0.61

Tall oil and turpentine are worth only 1.14 percent of total
product value from Kraft Process.

1.62 (11,993,000) = 19,600,000 cords of pulpwood @ \$13.80 per cord =
/factor for converting tons of wood pulp
to cords of pulpwood. \$270,480,000

Farm Value of Pectin Used by the
Industry in Non-Food Uses

Recap:

<u>Products</u>	<u>Raw Materials</u>	<u>Farm Value</u>
Any non-food product containing pectin	Lemon Cannery Waste	\$500,000

Industrial Consumption (Non-Food)

<u>Material</u>	<u>Quantity</u>	<u>Value</u>
Pectin	300,000 pounds	\$600,000



Farm Value of Pectin Used by the Industry in Non-Food Uses

Three thousand tons of pectin (6,000,000 pounds) were produced in 1951 of which more than half was derived from citrus fruit. Of this, 2,000,000 pounds were produced by the Exchange Lemon Products Co. in Corona, Calif. More than half of that company's production went into the preserving industry for jellies and jams, and for use in a variety of food and pharmaceutical applications. It has been estimated that at least 75 percent of the world's pectin production goes into jams, jellies, preserves and marmalades. Data obtained in WURB indicated 95% of all pectin is used in preparation of jams and jellies; and that the other 5 percent have many outlets including other foods and therapeutic. In 1955 it was reported that the use of F grade pectin in medicine is expanding greatly but nevertheless it is believed that the amount of pectin so consumed is still a small percentage of total.

Based on all of the above information, it is estimated that approximately 5 percent of pectin production (or 300,000 pounds) is consumed in pharmaceuticals and cosmetics, the pectin valued at

dollars/pound (citrus pectin, National Formulary powdered barrels)
(2.05) (300,000) = \$600,000

Fresh peel contains 3 percent or more of pectin - so it can be said that an equivalent of $\frac{300,000}{.03}$ or 10,000,000 lbs. of lemon cannery waste was utilized in pectin production with a farm value of

Estimated quantity utilized for pectin	Cash receipts, lemons	
10,000,000 /	(50,299,000) /	= \$500,000 approx.
944,000,000		
/ Total lemons consumed		

THE HISTORY OF THE UNITED STATES OF AMERICA

The history of the United States of America is a story of growth and change. It begins with the first settlers, who came to the New World in search of a better life. They found a land of opportunity, but also a land of conflict. The struggle for independence was a long and hard one, but it was worth the effort. The United States emerged as a new nation, one that was free and independent. It was a nation that was built on the principles of liberty and justice for all. The story of the United States is a story of the people who have shaped it, and the challenges they have faced. It is a story of the triumph of the human spirit over adversity. The United States is a nation that has made great contributions to the world. It is a nation that has inspired people everywhere. The history of the United States is a story that will continue to be told for many years to come.

Farm Value of Ramie Used by the Industry
in 1954, and estimates for 1955

Recap:

Raw Material

Industrial Consumption
including exports

Farm Value
Million dollars
1954 1955

Ramie

	<u>1954</u>	<u>1955*</u>
	2,000,000	4,000,000
	pounds	pounds
	dry ribbons	dry ribbons

\$600,000	\$1,200,000
-----------	-------------

* Estimated

Farm Value of Ramie Used by the Industry in 1954, and estimates for 1955

1954. The largest grower of ramie, Newport Industries, Inc., with 2500 acres, produced 2 million pounds of dry ribbons in 1954. Of this 200,000 pounds were degummed in the company's plant at Clewiston and sold for domestic consumption. The balance was released for export in the undegummed form.

1955. Mr. Gilbert Brereton of New Orleans has been engaged in ramie work for some time. He indicated on May 21, 1956, that about 3000 acres ^{were} ~~are~~ harvested for ~~planted to~~ ramie, that 3000 additional acres are ready for planting, and that marketing of the fiber is no problem. He stated that harvesting methods being used are reducing yields which could be as high as 1500-1800 pounds of degummed fiber per acre. For the purpose of this estimate, a yield of 1000 pounds of degummed fiber (or approximately 1350 pounds of dried undegummed fiber) was used.

Total production for 1955 is estimated to be:

acres	pounds/acre
(3000)	(1350)

= 4,000,000 pounds dried undegummed fiber

valued at \$1,200,000 based on a reported price of 30 cents per pound.

Farm Value of Tung Used by the Industry in
the 1953-54, 1954-55 and 1955-56 Marketing Years

Recap:

<u>Products</u>	<u>Raw Materials</u>	<u>Farm Value</u> (Mil. dollars)
All products containing U. S. Tung	U. S. Tung	
1953-54 "	"	Total U. S. Crashings \$7.5
1954-55 "	"	Total U. S. Crashings plus purchases from CCC \$4.9
1955-56* "	"	Total U. S. Crashings \$4.4
Three Year Avg. "		\$5.6

* Estimated from trade source information.

Industrial Consumption

1953-54

Domestic tung oil 6.6 mil pounds

Imported tung oil 41.5 mil pounds

1954-55

Domestic tung oil 15 mil pounds

10 mil pounds from CCC

Imported tung oil 25 mil pounds



Farm Value of Tung Used by the Industry in 1953-54 Tung
Marketing Year (Last year of normal domestic production).

The U. S. consumption of tung oil in each of the last four marketing years was about 50 million pounds. The United States has always for the most part depended upon imports to meet its domestic requirements.

1954 and 1955 have been years of low output because of unfavorable weather conditions. In 1953, the last year of normal domestic production, tung nuts were crushed by the industry valued at

$$(112,600)(\$66.80) = \$7,500,000$$

During that year, however, 33 million pounds of tung oil or four-fifths of the domestic oil was placed in CCC stocks under nonrecourse loans, which means that imports supplied most of the U. S. consumption. Because of heavy freezes in the two years following CCC holdings had dwindled to 9 million pounds at the end of March, 1956. So looking at the tung picture over a period of the last few years -

1953: 6.6 million pounds of oil from 18,750 tons of domestic nuts valued at \$1,250,000; and 41.5 million pounds of imported oil valued at \$8.3 were consumed.

1954: 15 million pounds of oil from 50,000 tons of domestic nuts valued at \$3 million; 10 million pounds of domestic oil from CCC valued at \$2.2 million and 25 million pounds of imported oil valued at \$4.9 million were consumed.

Crushings by the U. S. industry in 1954 amounted to 46,600 tons valued at

$$(46,600) (\$59.40) = \$2,800,000$$

1955: It is estimated that this year's crop will produce 28 million pounds of oil. Based on the 1954 yield of 325 pounds of oil per ton of tung crushed and a support price of \$51.06 per ton,

The first part of the paper is devoted to a general discussion of the problem.

In the second part we shall consider the case of a single particle. The results obtained in this case are of great importance for the understanding of the general case.

The third part of the paper is devoted to a detailed analysis of the results obtained in the second part. It is shown that the results are in good agreement with the experimental data.

In the fourth part we shall consider the case of a system of particles. The results obtained in this case are of great importance for the understanding of the general case.

The fifth part of the paper is devoted to a detailed analysis of the results obtained in the fourth part. It is shown that the results are in good agreement with the experimental data.

In the sixth part we shall consider the case of a system of particles. The results obtained in this case are of great importance for the understanding of the general case.

the estimated value of domestic crushings is:

$$\frac{28,000,000}{325} (51.06) = 34,400,000$$

U. S. Imports for Consumption

C. Y. 1955

<u>Commodities</u>	<u>Quantity</u> <u>(Mil. pounds)</u>	<u>Value</u> <u>(Mil. Dollars)</u>
Natural Rubber inc. latex and guayule	1,422.9	440.6
Castor Oil	95.3	8.9
Castor Beans	87.5	4.1
Palm Oil	44.2	4.6
Palm Kernel Oil	8.7	1.0
Babassu kernels	17.5	-
Coconut Oil	145.3	16.3
Copra	701.6	40.9
Tung	21.1	4.2
Total		<u>520.6</u>

Thous. pounds

Thous. dollars

Waxes:

Petroleum Wax -		
Paraffin & Par. Wax	87.3	8.0
Vegetable Waxes -		
Carnauba Wax	18,439.5	11,000.0
Japan Wax	211.2	75.7
Candelilla Wax	3,191.3	2,202.6
Ouricury Wax	436.7	341.0
Other Wax	3,008.6	662.3
Insect & Animal Waxes -		
Beeswax (Crude)	4,959.5	2,888.2
Animal Wax	187.8	110.5
Spermaceti Wax	131.6	25.5
Mineral Waxes -		
Montan Wax	1,289.3	224.1
Ozokerite & Other Waxes	1,415.5	567.5
Total	<u>33,358.3</u>	<u>1,810.3</u>

In addition 770,970 pounds of Wax and Other Candles valued at \$217,617 were imported.

Total Value of these imports - \$522,627,000

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